

Habitat use and activity patterns of red deer (*Cervus elaphus*) – consequences for Wildlife Ecological Spatial Planning (WESP) in the national park “Hohe Tauern”, Austria

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Summary

Conform to national park requirements, a red deer management concept was developed and established in a region of the national park “Hohe Tauern” (Austria) since 1999. With the experience of the originally large-scale Wildlife Ecological Spatial Planning (WESP) for the province of Salzburg the regional management was refined up. The consequences of different management measures were consistently monitored using different field methods including GPS collars. The results serve the adaptive management. The instrument of WESP did work in the study area. With our data we underline the importance of (i) large scale concepts for deer management and culling strategies (harmonizing national park and surrounding areas), and (ii) adequate resting areas (in terms of size, distribution, and habitat quality). Supplementary feeding during winter, as a technical crutch temporary on certain places, can help to manage and control populations in small areas to minimize the negative impact on the vegetation, if other management tools are not feasible.

Keywords

Red deer, national park, management, spatial planning

Aims and duration

Wildlife Ecological Spatial Planning (WESP) is an instrument for integrative wildlife and habitat management based on ecological and socio-economic principles (REIMOSER, 1999). It comprises a large-scale spatial planning framework with regard to wildlife populations (population areas, sub-population regions, different management zones, monitoring system), and a detailed regional planning, that can be further adapted to specific local conditions. All zoning is to be understood as a dynamic process (adaptive management). With the experience of the originally large-scale conceived WESP a sustainable wildlife management in the national park should be developed and established.

Area of study

The study area was located in the hunting territory “Koetschach-Valley”, in the eastern part of the national park “Hohe Tauern” near the village of Bad Gastein in the province Salzburg (Austria). The valley is running from SE to NW at an elevation from 1,280m to 1,080m above sea level. It is surrounded by mountains up to 3,000m. From the total hunting area of 3.878 ha, 2.557 ha (66%) were national park core zone, 738 ha (19%) buffer zone and the rest of 583 ha (15%) were regular hunting ground outside the national park.

Methods

Since 1999 we established annual red deer counts in the model area of the national park and in the surrounding areas relevant for red deer management. The census was done annually on the same spot at about the same time. Three mid-summer census areas were in high altitudes and one winter area was at a supplementary feeding station in the valley. In addition to the counts we started a GPS telemetry project in 2003 to get a better insight in the spatial migration and the seasonal activity of red deer.

Results

The results from our counting areas showed a more or less stable red deer stock at the feeding station during winter. In the first half of the project we counted a mean of 108 individuals, at the second half we counted a mean of 115 individuals. Deer numbers of neighboring feeding stations showed also a stable red deer stock. In summer, in the open areas of the altitudes significant more red deer became visible in the second part of the project (see figure 1) when these areas were

more and more known by the animals as resting areas without relevant disturbance. No matter which half of the project was chosen, the sum of the summer areas did not match with the respective means of the winter area. The results of the telemetry project showed a strong migration from the winter areas to the specific summer ranges.

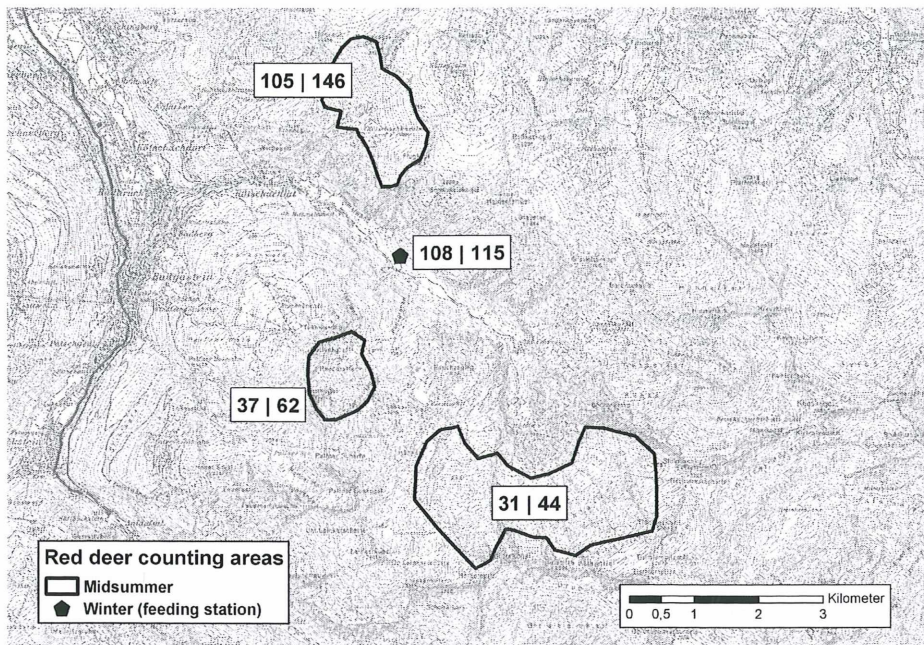


Figure 1: Mean values of annual red deer counts summer and winter. Figures on the left = mean of first 4 project years, figures on the right = mean of the second 4 project years.

Discussion

The results show the importance of considering the respective red deer population area as suggested in WESP for better and sustainable management actions. Only a part of the summer red deer stock is present in the study area in winter as well. The additional “summer” individuals immigrate from neighboring regions. So our counting results strengthen a large scale basis for management actions.

The existing summer areas are located above the treeline and provide the primary natural habitat for these large herbivores. During the project duration no culling activities were taken in these areas so the disturbance by human influence was kept at a very low level. This led to less shy individuals and a better visibility (increasing numbers). All culling activities were done highly efficient in special designed space and time dependant regulation areas like the wildlife management zoning in WESP. It also underlines the importance of quiet resting areas for red deer. With this zoning the negative impact on the vegetation can be kept at a very low level.

Also important for this low level of game damage is the supplementary feeding station. The deer migrated within a short time frame from the station to their summer ranges and vice versa. This kept the length of stay in possible susceptible forest to game damage as short as possible. In this case, professional supplementary feeding was used as a tool to steer and control the population.

References

REIMOSER, F. (1999): Wildlife Ecological Spatial Planning (WESP): An instrument for integrating wildlife into comprehensive land management. In: C. Thomaidis and N. Kypridemos (eds.) Agriculture forestry – game, integrating wildlife in land management. Proceedings of the International Union of Game Biologists, XXIVth congress (1999), Thessaloniki, Greece, 176-185.

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